DRTC Conference on
ICT for Digital Learning Environment
11th – 13th January, 2006
DRTC, Bangalore

Paper: T

Role of Digital Libraries in E-learning

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Abstract

The use of sophisticated technologies such as computer and tele-communication are bringing classroom to the home and opening access to education for those who never entered or are unable to enter the portals of University. E-learning is an integrated and continuous approach to build knowledge skills of competitive through web enabled technologies. The digital libraries have got a significant role to play to assist effective e-learning process. Effective learning is having advantages in delivering the right content to the right person at the right time. The paper discusses need and importance of e-learning and the role of digital libraries in E-learning process.

1. Introduction

Education is the pillar for the development of any society. Education should not concentrate only to academics; it is the medium for the overall development of personality of the student. The quality of a nation depends upon the quality of its citizens. The quality of its citizens depends not exclusively but in critical measure upon the quality of their education. Education plays a great role in every learner's life. It is rightly said that today's bud is tomorrow's flower and if we take care of the bud today, we will have a nice flower tomorrow.

The invention of information technology industry has given a new shape to the learning process, which involves reading, understanding and gaining information, which becomes knowledge. Particularly, Internet technology has changed the way people find information, communicate, do business, network, find jobs and have fun. It is also changing the way people learn. The simplest definition of e-learning is the use of internet technology to facilitate learning. It can be delivered in many ways – via a PC, digital TV, or mobile phone. E-learning has many benefits and it allows one to get the knowledge one's needs, when he needs it and where he needs it. With more systematic support the new generation learners finds him equipped with lot of information.

E-learning technology is a wonderful gift provided by the present day technological advancement and innovations. Believe it or not, American students are taking mathematics lessons from teachers sitting in New Delhi and students from across the globe doing a crash course on disaster management from a Swiss University. A student in a remote Orissa village taking his MBA examination from a Mumbai based university without visiting Mumbai. That is the power of e-learning which is one of the benefits, information technology offers to the mankind. E-learning is the convergence of learning and the Internet and it has brought about profound changes world over in the way people learn and train, allowing them to do it anywhere, any time. Through the web a user can access content from any point, off or in campus, through a computer and connectivity.

2. Concept of E-learning

E-learning is defined as an interactive learning in which the learning content is available on-line and provides automatic feedback to the students learning activities. E-learning covers a wide set of applications and processes, such as, web-based learning, computer based learning, virtual class rooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet, satellite broadcast, interactive Television, CD-ROM, DVD, audio and videotape, etc. E-learning can be defined as instructional content or learning experiences delivered or enabled by electronic technology. It is a structured, interactive approach to educating and informing the students, employees, etc.

In 1980s, when computers were not in wide use, instructor led training was the primary training method, which allowed the students to interact with their teacher and classmates. It was costly and time bound training of traditional method of learning. As a result of technological advancement, by 1995 WINDOWS, CD-ROMs, power point, DVD came into use. The educational institutions and business organizations tried to make training more transportable and visually engaging via CD-ROMs and DVDs and anytime, anywhere usable training helped to support the traditional teaching methods.

First phase of e-learning 1994 – 1999: the advent of Internet and web browsers, E –mail, HTML, media players led to the development of e-learning with multimedia support. Intranet made easy the transmission of graphics & text, and image information across the world at a low cost and proved to be beneficial for companies and organizations, with a rapid speed of information transfer.

Second Phase 2000 onwards: During this period, with the access of high bandwidth and improved website designs live instructor led education through online in multidimensional environment has emerged, which is more cost effective and enhanced the learning with up to date interactive mode technology.

3. Delivery of E-learning

E-learning may be considered as a backbone for all educational programs, which can be delivered in two platforms. They are:

3.1. Scheduled Delivery Platform – Scheduled delivery technology is provided through multicasts, like video broad – cast over the network, remote laboratories access, virtual class rooms (live web based classes, access to practical in the labs) etc., can be accessed through a network. Though this method of e-learning creates interaction between the teacher and student, it is restricted by time and place requirements.

3.2. On Demand Delivery Platform – As the name itself suggests, the information is provided round the clock and at any place. It includes web based training classes, information resources and interactive CD-ROM services on demand.

E-learning can be accessed by a browsing software on any operating system like, WINDOWS, UNIX, MAC, AMIGA etc., over Internet or Intranet environment, by downloading the free web browser softwares like Netscape, Telnet etc.

4. Role of Digital Library in E-learning

Libraries are not the mere store house of books, the modern library with the explosion of information technology has led to a paperless society, digital and virtual libraries the www (world wide web) has opened up electronic information and the users want that information in a refined manner. The traditional libraries occupy more space, but the documents are being digitized so, it occupies less space. The main features of digital library are as follows:

- *information is stored in digital form;*
- *information sources are amenable for computer access;*
- *facility for multi-user search;*

- *offers network accessibility*
- *provides user-friendly interface;*
- *facility to browse, select, retrieve, download in the user computer;*
- *facility to have any number of copies, if required;*
- *some times, rare and expensive material is available.*

Digital libraries are set of electronic resources and associated technical capabilities of creating, storing, searching and dissemination of information. Digital libraries are playing a vital role in online learning education system. Most of the digital libraries are dedicated to supporting higher education and research and they justify their investment in digital development as a powerful means of realizing the larger institutional goals of the academic community they serve.

One reason for using digital libraries in E-learning is that it can store and manage large amounts of digital content such as full text, course materials, bibliographic databases, library catalogues, image and audio clips etc. Thus it provides an environment to bring together collections, services and people in support of the full life cycle of creation, dissemination and preservation of data, information and knowledge. Another reason to use digital libraries is that using various electronic tools, learners can search text materials and images easily and quickly, which can be applied broadly across all kinds of institutions. Advance intercommunication technology, sophisticated search engines, and affordable cost, large storage of digital content are the other reasons to implement a digital library in modern education. Other advantages of digital libraries in E-learning are:

- The library would allow learner to use electronic resources from anywhere, without even knowing where it is stored geographically.
- One copy of the documents could be viewed by any number of users simultaneously.
- It can be used for increasing course delivery for a large number of clients at a particular point of time.

- Study materials need never go out of print, and new editions can easily be created. One can carry several titles at once on a portable reader and, over time, build a personal library.
- It would be easy for non-specialist to use due to the simplicity of operation.
- Links to publisher's sites for full text journals.
- It provides and facilitate online and on demand enrolment, study and examinations,
- Search result will be delivered to an e-mail box to the user's choice.
- Protecting rare books that are rapidly deteriorating due to over use and poor storage conditions.
- It is cost – effective and cost-efficient for its ability of reuse.
- It provides faster learning, increased access, clear accountability and equal education for every body; the web is available on the desktop.
- It provides current information and helps in research work. To cope up with the advancements in technology, production of information in multidimensional forms, it became essential for a person to pursue additional knowledge at all times to keep him/her up-to-date in his/her field of interest. These factors are directing to the learning. The virtual conferences, collaborative work on projects, which are shared among institutions, exchange of useful material and experience among teachers provide up to date information for the research.

5. Challenges Faced by the E-learners

The development of E-learning has thrown up new problems focused on the copyright and intellectual property rights implications of electronic text. Students, researchers, staff, employees and other end users affiliated with virtual university or digital libraries should be allowed to print-on-paper excerpts of digitally available works on the same conditions according to which they may make photocopies of print material. The library authority have to discuss seriously with publishers on this aspect in order to evolve

some mechanism profitable to both users, publishers as well as authors. Users may be charged for each access, downloading from servers and/or each kind of digital library collection. This would provide a reverse for publishers, authors and libraries.

Security aspect is the most pressing challenge of digital affairs. Piracies of database, viral invasions, and parallel satellite networking stress are some of the issues for digital libraries are confronted as a way of routine.

Other major challenges are:

- There is no mechanism available to establish standards for internet materials, instruction, design and quality of interaction.
- Study materials are accessible only by specified students, licensing problems are unlikely to be serious barrier.
- Since course materials are instructionally designed, it hardly provides for individual variations and further revision.
- Dangers of increased learner isolation as students learn from the screen, and not through much interaction with their peers and teachers.
- Crossing national boundaries creates logistical and organizational problems of distance teaching institutions. The facilities available and aptitude level of European students and developing countries are different.
- Operating overseas can also expose one to the all problems of any international business, exchange rate fluctuations, restriction on foreign exchange, and the export of money from the country of operation to pay for services, sources from another jurisdiction, political turmoil, civil unrest and war etc.
- Information providers are more interested in profit than quality services.
- Lack of organization of information on Internet.
- Not all sites are updated regularly.
- Absence of monitoring mechanism to evaluate the course ware.
- Lack of awareness about the use of electronic equipment.

- Lack of human interaction, it is difficult to judge how much a student understood a particular topic. In teacher student face-to-face interaction, the teacher can know the level of understanding of each student and accordingly he can try to explain the problem with suitable examples. At present the interactivity in learning is not very much developed.
- Lack of expertise not to many vendors/experts is available in the country and abroad as well. Overseas vendors charge too much and also reluctant to import techniques/technology.
- Access to Internet in developing countries including India, may not be easy or widespread, in comparison to the developed countries.
- Lack of motivation, in a classroom instruction the teacher and students interact in discussing and understanding the subject spontaneously, which creates motivation among the students towards learning. In e-learning, due to lack of motivation sometimes it may appear dull.

6. E-learning Initiatives in India

E-learning is a new technology in the field of education. At present it can support the traditional teaching and learning but it cannot be recognized and accredited. E-learning will suit a country like India which is spread over a vast geographical area. E-learning with its wide accessibility can reach the learners, having a telephone line, a modem, a Net connection and a machine, who are dispersed over a large area. It is sure e-learning is the only way by which we can make India, a knowledge based society.

- In 1984, the Government of India started a project called CLASS (computer Literacy And Studies on Schools). As a result of this project; computer literacy is made compulsory for classes XI and XII. The infrastructure for the computer science teaching, like computers, electricity and other fittings were brought by the respective state governments. In the 7^{th} five year

plan 2598 schools & in the 8th five year plan 2371 schools started computer literacy, laying foundation step towards E-learning in India.

- Under the Education Technology Scheme 1987, Audio-software (cassettes) and videocassettes were provided to the schools for training the students. Bihar, U.P, Orissa, Maharashtra, Gujarat, Kerala and Andhra Pradesh started broad casting educational programs through radio and Doordarshan. By the year 1999 the state governments for the primary schools sanctioned 75,903-color televisions. At present, in India, many schools – both private and government aided – started computer science as a subject and the schools have augmented the infrastructure with Television, audiocassettes and videocassettes, CD-ROMs etc. In Indian schools, the future development can be attributed to E-training.

- During the year 2003, Indian Government launched an ambitious project of E-learning and E-governance and planned to spend $2660 million in the next four years. The main aim of this project is to take E-learning to schools in every district across the country. This project, will ultimately cover 6,00,000 schools in India. Karnataka State Government launched another major E-learning project in 2003. The Government of Karnataka and IBM India signed a Memorandum of Understanding to promote E-learning within the state. Under the project, IBM will develop an E-learning platform for BITES (Board for IT Education Standards) for higher technical educational institutions in Karnataka. The E-learning platform with the Government of Karnataka will create one such eco-system and develop educational institutions in the state as Centers of Excellence. Next few years will determine whether or not the dream of making E-learning available to our billion strong populations becomes a reality.

- A number of private companies and institutes such as NIIT, APTECH, Institute of Management Technology, Ghaziabad, Gurukul Online Learning Solutions started offering E-learning programmes in various disciplines including computer science and information technology.

- University Grants Commission Higher Education Project – UGC with collaboration of INSAT, started COUNTRY WIDE CLASS ROOMS on 15th August 1984, to upgrade and enrich the quality of education, while extending their reach. In inter university consortium for education communication (CEC) along with a chain of about 20 audio – visual media. Mass Communication Research centers were set up by UGC at different institutions of the countries.

- IGNOU Doordarshan Telecast – Indira Gandhi National Open University started telecasting educational programs from 1991, for distance learners. Now five days a week is telecasted on Doordarshan channel.

- GYANDARSHAN Educational Channel – Ministry of Human Resources Development, Information and Broadcasting Prasar Bharati and IGNOU launched GYANDARSHAN jointly on 26th Jan 2000. It is an exclusive educational TV channel in India; working jointly with SIET, NOS, DST, NCST etc. and at present it transmits educational programs round the clock. The programs from partner institutions are telecast for 23 hours a day and foreign programs for 1 hour a day. The programs of IGNOU, CIET – NCERT are telecast for 4 hours, each, IIT programs for 3 hours, each, CEC – UGC programs for two and half hours and one hour each for IIIT and Adult education.

- EDUSAT provides education to millions of people at their doorstep. It is the world's first educational satellite in India launched in 20th Sept 2004. It enables information to be

broadcast in local languages and devoted to long distance learning in India.

7. Conclusion

Electronic documents offer possibilities for expanding access as well as changing learning behavior and academic research trends. Content can always be accessible, regardless of time or place to be read on PCs. Digital library helps academicians and students by providing wide range of reference they needed world wide, without wasting time and resources, and also aims at encouraging better use of information resources available on Internet in the digitized form. However, digital libraries in distance learning are still not clear in country like India. The INFLIBNET has already started Networking of different university libraries; on its completion it will be possible to share all available resources for imparting E-learning to far distant places in the country.

The role of library professional is also changing in the digital library environment. There is a specific role for library professional to play in matching the user with correct information source. Library professional with their expertise, knowledge and techniques of where to look up and how to find out information for given query can help the users in their search for information by extending personal help and assistance. The success of the library and information science profession, in future, largely depends on how best they could make use of available information technology in performing their tasks and achieve productivity in obtaining set targets. Thus, there is an urgent need for intensive practical training in modern technologies otherwise, the information science will decouple from library science.

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